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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,870

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Satoru Nishiuma

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EXAMINER

WEISZ, DAVID G

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,870	<b>Applicant(s)</b> NISHIUMA, SATORU	
	<b>Examiner</b> DAVID WEISZ	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danielzik et al. (US5822472) in view of Pilevar et al (US6558958).

Regarding claim 1 Danielzik et al. discloses, in Figure 1, an optical analysis device (1) comprising:

a light-transmitting member (4) for transmitting light ( $k_{ie}$ ), having an external face capable of immobilizing a detection-objective substance (see “substances having luminescence properties immobilized on the layer (b)” Col3/lines 26-50);

a light separating means (3) for separating an exciting light (see “luminescence” Col3/Lines26-50) introduced into the light-transmitting member at a first end (Figure 1) thereof and transmitted through the light-transmitting member (4), and fluorescence light (see  $k'_{out}$

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Col3/Lines26-50 and “luminescence is fluorescence”, Col10/Lines14-19) produced by the excitation of the detection-objective substance by the exciting light (see “luminescence produced by substances” Col6/Lines26-50), at a second end of the light-transmitting member (Figure 1), and

a detecting means (see “detection system” Col5/Lines26-33) for detecting the fluorescence light (see “luminescence radiation” Col5/Lines26-33) separated by the light separating means (3).

However, the reference does not disclose the light-transmitting member to be a cylindrical column.

Pilevar discloses an optical fluorosensor that utilizes a cylindrical fiber-optic Bragg grating (see Figure 7). Additionally, the reference discloses that Bragg gratings allow all propagating wavelengths to pass through with negligible insertion loss and no change in signal (Col10/L36-46).

The references are analogous because both are directed toward optical sensors utilizing gratings.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the light-transmitting member of Pilevar in the apparatus of Danielzik because Bragg gratings allow all propagating wavelengths to pass through with negligible insertion loss and no change in signal.

Regarding claim 2, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the light-separating means is a diffraction grating (see Danielzik, “coupling grating” Col3/Lines26-50 or (3) in Figure 1).

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Regarding claim 3, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the light-transmitting member comprises an optical waveguide (see Danielzik, "waveguiding layer", Col3/Lines26-50 or (4) in Figure 1).

Regarding claim 4, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the optical analysis device comprises a flow path (see Danielzik, "flow" col16/lines1-5) which covers the light-transmitting member (4) and has an inlet (2) for introducing the detection-objective substance and an outlet (3) for discharging the detection-objective substance (see also Col3/Lines33-36. Inherently, a flowing substance introduced into a system needs an inlet and an outlet.

Regarding claim 5, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the light-transmitting member (1) has at the first end thereof a coupling means (2) for coupling exciting light (see Danielzik, (k<sub>ie</sub>) "coupling the excitation light" Col3/lines26-50) to the light-transmitting member (4).

Regarding claim 6, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the coupling means is a diffraction grating (see Danielzik, "coupling grating" col6/lines5-10).

Regarding claim 7, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the external face (see Danielzik, "surface" col11/lines5-10) of the light-transmitting (1) member is capable of immobilizing (see "immobilising" col11/lines5-10) a trapping component (see "adhesion-promoting layer" col11/lines24-33) for trapping the detection-objective substance (see "detector substances" col11/lines24-33).

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Regarding claim 8, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the trapping component (see Danielzik, “adhesion-promoting layer” col11/lines24-33) traps the detection-objective substance by an antigen-antibody reaction (see “antibodies for antigens” Col11/lines34-42).

Regarding claim 9, modified Danielzik et al. discloses all the claim limitations as set forth above. Additionally, the reference discloses that the trapping component (see Danielzik, “adhesion-promoting layer” col11/lines24-33) traps the detection-objective substance by hybridization reaction of DNA (see “hybridization assays with DNA” Col10/Lines35-40).

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection. On page 4 of Applicant's arguments, it is stated that the Danielzik reference does not teach the limitation “cylindrical columnar light-transmitting member.” Please refer to the modified Danielzik rejection 1 above.

#### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID WEISZ whose telephone number is (571)270-7073. The examiner can normally be reached on Monday - Thursday, 7:30 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. W./

Examiner, Art Unit 1797

/Arlen Soderquist/

Primary Examiner, Art Unit 1797